INTERCANINE CROWN DISTANCES IN RED FOXES AND BADGERS

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Abstract.— Intercanine crown distances of 605 wild South Dakota red foxes and 249 badgers of unknown age were measured; adults and juveniles were diagnosed by radiographs of canine teeth. In foxes, T-tests between similar age, between similar sex, and between combined age groups were significant at .01. In badgers, significance was found only between adult males and juvenile males and between adult males and adult females at .05.

With refinement of furbearer management practices, methodology of accurate age determination is paramount in obtaining information on current population status. Various workers (Churcher 1960, Grue and Jensen 1976, MacPherson 1969, Morris 1972) have shown that a variety of cranial characters are correlative with the aging process in carnivores.

In the red fox, for example, several skull characters have been shown by some of the above to be reliable indicators of age, such as closure of various sutures, triangularity of postorbital processes, texture of temporal areas, pointedness of nasals, and several dental characters that include numbers of incremental annuli, pulp cavity size, enamel line distance, overall tooth wear, etc. Churcher (1960) was able to differentiate with a fair degree of accuracy between sexes of similarly aged fox by graphing mastoid width against total skull length × zygomatic width.

An additional character that was thought to possibly have correlation with aging in wild populations of red foxes and badgers is the distance between crowns of normally rooted canine teeth.

Upper jaws of over 600 unknown age red foxes and lower jaws of 249 unknown age badgers were obtained from a local fur dealer and were cut from skulls with pruning shears. Measurements of maxillary intercanine crown distances were then made with vernier calipers to the nearest 0.1 mm. Jaws were boiled to loosen canines, after which teeth were removed and X-rayed to distinguish between juveniles and adults. Results were then analyzed to determine significance (Figure 1).

In foxes, all T-tests computed between similar age, similar sex groups, and combined age groups were significant at 0.1; a T-test between adult females and juvenile males was not significant at .05.

In badgers, T-tests between adult and juvenile males and adult males and adult females were significant at .05. No significance (.05) was encountered between adult females and juvenile females, between juvenile males and juvenile females, and between combined adults and combined juveniles.

This study was based upon unknown age South Dakota carnivores that were partitioned as either adults or juveniles by relative size (X-ray) of pulp cavity, an accepted technique among many wildlife workers. These results should be interpreted with the knowledge that relative pulp cavity size has yet to be shown as absolute.

It is hoped that these results will stimulate further studies of intercanine crown distances in known age wild foxes and badgers.

Literature Cited

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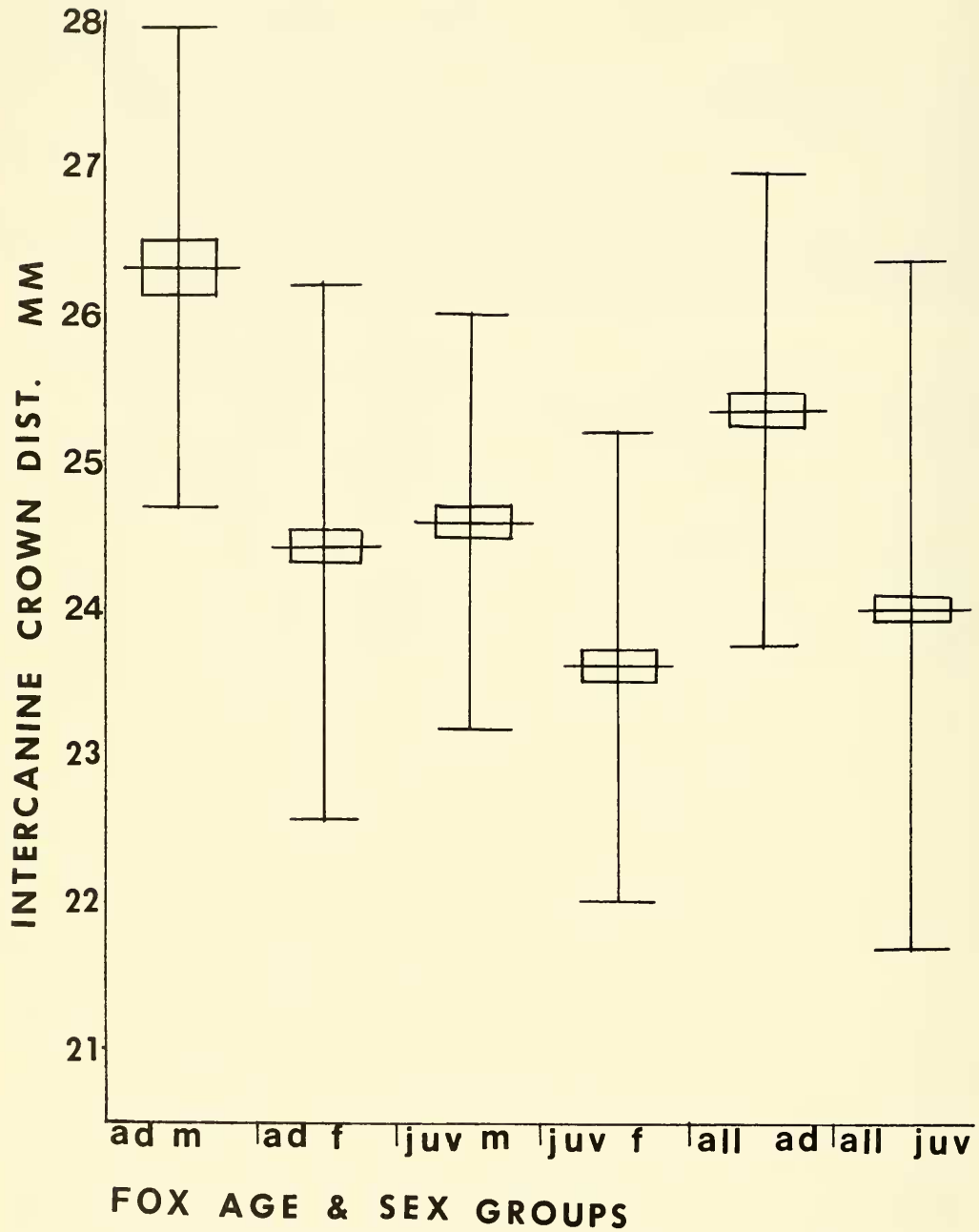

Fig. 1. Maxillary intercanine crown distances of wild South Dakota red foxes. Adults were partitioned from juveniles by X-rays of canine teeth. Means, longer horizontal lines; two standard errors, boxes; and two standard deviations, vertical lines.